

We claim:

1. An article comprising a tunable filter, the tunable filter comprising:
an optical cavity having a length that is determinative of a center transmission
wavelength of a passband of said tunable filter;
a tuning device operative to change said length of said optical cavity; and
a filter-disabling means operative to disrupt a finesse of said optical cavity.

2. The article of claim 1 further comprising:
a first filter input for receiving a multiplexed optical signal having a plurality of spectral
channels and delivering it to said optical cavity;
a first filter output for receiving at least one of said spectral channels from said optical
cavity, wherein said received spectral channel is within said passband of said
tunable filter.

3. The article of claim 2, further comprising:
a first waveguide in optical communication with said first filter input; and
a second waveguide in optical communication with said first filter output.

4. The article of claim 3 further comprising:
a plurality of transmitters for generating a plurality of optical signals;
a multiplexer for multiplexing said optical signals into said multiplexed optical signal,
said optical signals defining said spectral channels thereof;
a node comprising said tunable filter and a subscriber terminal, wherein said subscriber
terminal is in optical communication with said second waveguide and is
operable to receive said spectral channel therefrom; and
an optical fiber for transmitting said multiplexed optical signal to said node, wherein said
first waveguide is in optical communication with said optical fiber via said
node.

5. The article of claim 1 wherein said optical cavity is defined by first and second
spaced mirrors.

1 6. The article of claim 5 wherein said first mirror is movable, and further wherein
2 said tuning device comprises said first mirror.

1 7. The article of claim 6 wherein said filter-disabling device comprises said first
2 mirror.

1 8. The article of claim 7 wherein said first mirror is operative to tilt.

1 9. The article of claim 8 wherein said first mirror comprises:
2 a layer suspended over a substrate;
3 a dielectric mirror disposed on said layer; and
4 two individually-addressable electrically-conductive electrodes.

1 10. The article of claim 7 wherein said first mirror is bifurcated into an upper layer
2 and a lower layer, wherein:
3 said upper layer and said lower layer are spaced from one another defining an
4 auxiliary gap; and
5 said upper layer and said lower layer are movable.

1 11. The article of claim 10 wherein:
2 said upper layer and said lower layer each comprise at least one layer of material; and
3 said one layer of material has a thickness that is an odd-multiple of an eighth of
4 an operating wavelength of said tunable filter.

1 12. The article of claim 6 wherein said filter-disabling device comprises electrically-
2 switched media selected from the group consisting of absorbing media, scattering media
3 and depolarizing media.

1 13. The article of claim 12, wherein said electrically-switched absorbing media is a
2 quantum well modulator.

1 14. The article of claim 1 wherein:
2 said optical cavity comprises a ring resonator;
3 said tuning device comprises an adjustable delay device operative to change a length of
4 said optical cavity; and
5 said filter-disabling device is an adjustable loss device characterized by a
6 transmissibility that varies with applied current.

1 15. The article of claim 14 wherein:
2 said filter-disabling device comprises a semiconductor optical amplifier that is disposed
3 in said ring resonator.

1 16. A method comprising:
2 disrupting finesse of a tunable filter;
3 tuning said tunable filter to a desired center transmission wavelength; and
4 recovering said finesse of said tunable filter.

1 17. The method of claim 16 wherein said filter has two spaced mirrors in parallel
2 relation to one another, said two mirrors defining an optical cavity, wherein:
3 the step of tuning comprises changing a length of said optical cavity.

1 18. The method of claim 17 wherein said step of tuning further comprises moving at
2 least one of said two mirrors to change said length of said optical cavity.

1 19. The method of claim 17 wherein the step of disrupting finesse comprises tilting
2 one of said two mirrors so that said two mirrors are not in parallel relation to one another.

1 20. The method of claim 17 wherein:
2 one of said mirrors is bifurcated so that a gap is defined within the bifurcated mirror;
3 when said filter is not being tuned, said gap has a first size that provides a first finesse
4 suitable for transmitting said center transmission wavelength through said
5 tunable filter;
6 the step of disrupting finesse comprises changing said first size of said gap to provide a
7 second finesse that is unsuitable for transmitting said center transmission
8 wavelength through said tunable filter.

1 21. The method of claim 17 wherein:
2 an electrically-switched media selected from the group consisting of absorbing media,
3 scattering media and depolarizing media is disposed in said optical cavity;
4 when said filter is not being tuned, said electrically-switched media is transmissible at
5 operating wavelengths of said filter;
6 said step of disrupting finesse comprises electrically switching said electrically-
7 switched media so that it is non-transmissible at said operating
8 wavelengths of said filter.

1 22. The method of claim 16 wherein:
2 said filter comprises a ring resonator having an in-line semiconductor optical amplifier;
3 when said filter is not being tuned, said semiconductor optical amplifier is transmissible
4 at operating wavelengths of said filter;
5 said step of tuning comprises changing an effective length of said ring resonator; and
6 said step of disrupting finesse comprises changing operation of said semiconductor
7 optical amplifier so that it is non-transmissible at operating wavelengths of said
8 filter.